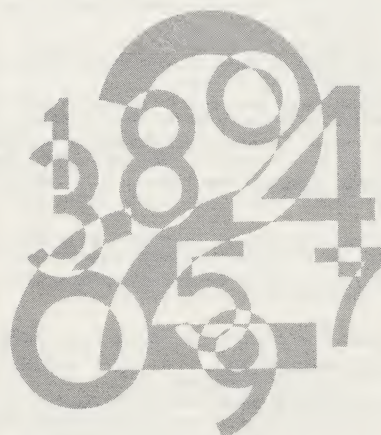
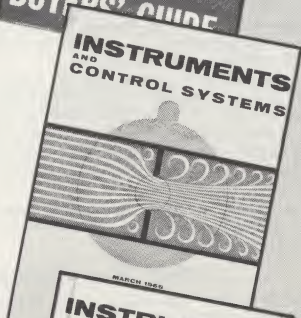
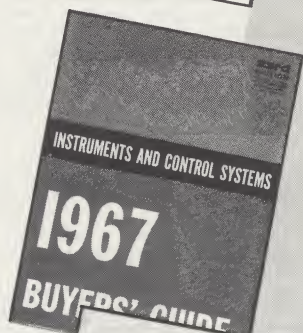
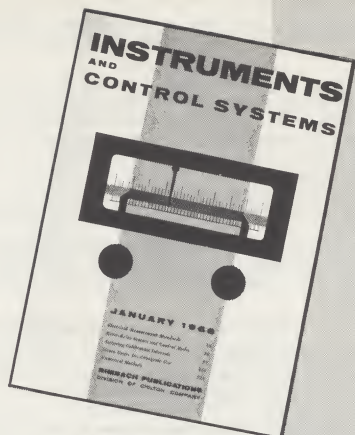


Just as this Handbook gives you practical information on DIGITAL DATA handling, so does INSTRUMENTS and CONTROL SYSTEMS keep you posted, every month, on the latest developments in all phases of instrumentation and control.



DIGITAL DATA HANDBOOK

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DVM Data Systems: William Clifford of Electronic Associates, Inc., shows how the DVM is used as the heart of a data acquisition system.

Unusual DVM Features and Applications: Thomas E. Nawalinski of Non-Linear Systems shows how the DVM is used in unusual data systems—statistical voltmeter, digitizer, converter, etc.

Dynamic Characteristics of Analog-Digital Converters: Walter S. Friauf of National Institutes of Health analyzes mathematically, the errors inherent in each digital conversion technique.

Digital Signal Conversion: Edwin N. Kaufman of Litton Systems Inc., reviews some practical factors in digital conversion which users often overlook.

Evaluating Digital Converters: Max Palevsky of Scientific Data Systems presents a computer technique for evaluating a digital conversion system.

Analog-Digital Conversion With Correlators: B. W. Bishop and W. J. Jakubas of Automatic Electric Company show how to perform digital conversion with reed switches.

Digital Electrometer Uses DC Transformer: W. K. Volkers of Micronia Corporation shows how to achieve an "infinite" impedance input with a DVM.

Magnetic Tape—State of the Art: Ed Schmidt of Reeves Industries, Inc., describes tape types, problems, and developments.

Part II — Magnetic Tape and Data Recording

Evaluation of Magnetic Tape: R. W. Jack of Electrodata Division, Burroughs, describes methods for testing tape.

Permanent Storage of Digital Data: Paul C. Constant, Jr., of Midwest Research Institute discusses the permanency of punched cards, paper tape, photographic systems and other systems for recording digital data.

Magnetic Tape Recorders: Milton H. Aronson, editor, describes the principles by which signals are recorded on tape, and surveys typical data tape instrumentation recorders.

Digital Tape Transports: Bruce Brown of Midwestern Instruments, Inc., discusses problems associated with basic pinch-roller drive for digital tape transports, and presents features and advantages of various vacuum and pressure drives.

Incremental Tape Transport: E. Poumakis of Potter Instrument Co., Inc., describes principles and applications of incremental tape transports.

Iso-Elastic Tape Drive: R. E. Hadady of Kinellogic Corp., describes an interesting tape drive based on a seamless polyester belt.

FM Recording: Theodore Anderson, Vidar Corp., discusses types and features of FM recording, the basic techniques used for instrumentation data.

Wideband FM Recording: Paul Leeke of Mincom Div., 3M Co., shows how wide-band FM recording allows use of the low end of the frequency spectrum, compatible with modern data formats.

Frequency-Shift Modulation: Ronald E. Young of Ampex Corporation tells why frequency-shift modulation has advantages in recording of digital data.

Predetection Recording: G. Nels Johnson of Mincom Div., 3M Co., discusses the advantages of predetection recording made possible by new video-band data recorders.

Evolution of PCM Telemetry: Lawrence W. Gardenshire of Radiation Incorporated traces the evolution of PCM data telemetry system from early ground data station to orbiting satellite.

PCM Telemetry Performance: Hans Scharla-Nielsen of Radiation Incorporated tells the methods for specifying PCM telemetry accuracy and measuring equipment performance.

Spectrum Analyzers for Telemetry and Data Acquisition: Kenneth Falor of Data-Control Systems, Inc., shows how spectrum analyzers are used in telemetry data systems for checking both signal and system.

Instrumentation Tape Recorders: Leonard D. Berringer, staff editor, surveys tape recorders which include analog, digital, aerospace, incremental, continuous loop, transient, and special types.

Continuous Digital Tape Recorders: Leonard Berringer continues the extensive series on magnetic tape recording with a survey of continuous digital tape recorders, the work-horse of the digital field.

Incremental Tape Recorders: Staff survey of available incremental tape recorders, which record data at the rate generated at the source.

Spacecraft Tape Recorders: John D. Heinzmann, Raymond Engineering Laboratory, discusses characteristics of spacecraft tape recorders.

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Time-Sharing Data-Acquisition System: B. Brentnall and W. H. Horton of Stanford University describe an inexpensive acquisition system using commercially available modules.

Low-Level Data Multiplexing: J. P. Knight, L. R. Klinger and D. C. Yoder of Systems Engineering Laboratories, Inc., present the technique of multiplexing directly at the transducer, saving one amplifier per channel.

High-Speed Low-Level Data Acquisition: Jeff D. Jones of Systems Engineering Laboratories, Inc., describes the elements in a 30,000-word-per-second data-acquisition system.

Digital Data Format Converter: Robert E. Baldwin of Ortronix Inc., describes a data format converter which accepts 36 parallel-line inputs at 20 frames/second.

Non-Modulated Direct-Reading Magnetic Recorder: Gilbert Kelton of Radcom Div., Litton Systems, shows how use of flux amplitude detection, rather than rate-of-flux-change detection, permits tape recorder to run at slow speed for long play.

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Transducers in Digital Process Control: R. H. Cerni of Consolidated Systems Corporation shows how digital transducers will speed the arrival of DDC.

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Computer Priority Interrupt: Malcolm E. Williams presents the features of priority interrupt essential to control computers, and surveys the computer-interrupt features of 12 control computers.

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Direct Digital Control of a Nuclear Reactor: Patrick J. Greene of Digital Equipment Corporation discusses an experiment in the use of a control computer.

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Computer Controlled Testing System: Herman P. Briar of Aerojet-General Corporation tells how he used a Packard-Bell 250 Computer system to control a test program; reducing costs and increasing accuracy.

Special Purpose Digital Controls: Daniel J. Love of Emerson Electric shows how to use small special purpose digital controllers.

Digital Sorting Control: Michael G. Hurley of University of California presents a two-level digital sorter.

The Revolution in Boiler and Power Plant Control: S. G. Dukelow of Bailey Meter Company shows how the modern computer controlled power plant has evolved in three stages.

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